

In general, a marketing professional analyzes the market for a particular product or service. The analysis may include many factors including, for example, inventory, age of the product on hand, competitor pricing, and manufacturing costs. Based on the analysis, a decision is made on whether or not a discount coupon should be issued. If it is decided to issue a coupon, the value of the coupon is determined. If the value of the coupon is set too low, the customer may not be motivated to purchase the product. If the value is set too high, the amount of profit from the sale may be unacceptable. A discount coupon may be printed and distributed to perspective customers. The customer may then redeem the coupon for the determined value when purchasing the product or service.

One problem with conventional discount coupons is that there may be a considerable time delay from when the value of the coupon is set and when the coupon is redeemed. This time may range from months to years for coupons shipped with products. During the time between when the value of the coupon is set and when the coupon is redeemed, the market for the product may change. Changes in the market may result in the value of the coupon being less than optimal. One method of solving this problem commonly used by advertisers is to specify an expiration date for the discount. Setting an expiration date on a coupon has its drawbacks as well. If the time the coupon is valid is too short, the coupon may expire before it has had a chance to be effective in the market. If the time the coupon is valid is too long, the market may change resulting in the value of the coupon being less than optimal.

Another method of solving the time delay problem is implementing faster distribution technologies, for example, issuing coupons electronically over the Internet. This reduces the time delay from when the coupon value is set to when the coupon is available to a customer; however, there may still be a time delay from when the coupon is available and when the purchase is made. Additionally, this solution may only be valid if the potential customer can be targeted using the faster distribution method.

What is therefore needed is a method, which overcomes the above disadvantages.

## SUMMARY OF THE INVENTION

One aspect of the invention provides a method of resetting the value of a coupon. A request for valuation of a coupon from a retailer is received. Market demand information for a product corresponding to the coupon may be accessed. A market demand value based on the market demand information may be determined. A coupon value based on the market demand value may be determined. The coupon value may be provided to the retailer. The request for valuation may be in response to a purchase. Market demand may be accessed from a database storing product sales data. Market demand information may be selected from a database including: retailer inventory, competitor pricing, current and anticipated competitor inventory, competitor advertising spending, cyclical buying trends, and economic indicators. The coupon value may be limited within a predefined range. The coupon value may be provided to the retailer in response to the request for valuation. The retailer may be the manufacturer. The market demand value comprises a percentage to be multiplied by the coupon value. A portion of the coupon value may be allocated to the customer purchasing the product. A portion of the coupon value may be allocated to the retailer.

Another aspect of the invention provides computer readable media containing computer readable code for resetting the value of a coupon. The computer readable code receives a request for valuation of a coupon from a retailer. The computer readable code accesses market demand information for a product corresponding to the coupon. The computer readable code determines a market demand value based on the market demand information. The computer readable code determines a coupon value based on the market demand value. The computer readable code may provide the coupon value to the retailer. The request for valuation may be in response to a purchase. Market demand may be accessed from a database storing product sales data. Market demand information may be selected from a database including: retailer inventory,

competitor pricing, current and anticipated competitor inventory, competitor advertising spending, cyclical buying trends, and economic indicators. The coupon value may be limited within a predefined range. The coupon value may be provided to the retailer in response to the request for valuation. The retailer may be the manufacturer. The market demand value comprises a percentage to be multiplied by the coupon value. A portion of the coupon value may be allocated to the customer purchasing the product. A portion of the coupon value may be allocated to the retailer.

The foregoing and other features and advantages of the invention will become further apparent from the following detailed description of the presently preferred embodiments, read in conjunction with the accompanying drawings. The detailed description and drawings are merely illustrative of the invention rather than limiting, the scope of the invention being defined by the appended claims and equivalents thereof.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**FIG. 1** is a block diagram of one embodiment of a system for resetting the value of a discount coupon, in accordance with the invention;

**FIG. 2** is a flow chart of one embodiment of a method of resetting the value of a coupon, in accordance with the invention;

**FIG. 3** is a table showing one embodiment of the fields included in a product information database record;

**FIG. 4** is a table showing one embodiment of the fields included in a product demand variables percentage database record;

**FIG. 5** is a flow chart of a routine of the procedure "receive request for coupon value from retailer" shown in the flow chart of **FIG. 2**;

**FIG. 6** is a flow chart of a routine of the procedure "Access market demand database" shown in the flow chart of **FIG. 2**;

**FIG. 7** is a flow chart of a routine of the procedure "Determine market demand value" shown in the flow chart of **FIG. 2**;

**FIG. 8** is a flow chart of a routine of the procedure "Calculate coupon value" shown in the flow chart of **FIG. 2**; and

**FIG. 9** is a flow chart of a routine of the procedure "transmit coupon value to retailer" shown in the flow chart of **FIG. 2**.

## 10 DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS

One embodiment of a system for resetting the value of a coupon is illustrated in FIG. 1 and designated in the aggregate as numeral 1. The system may include computer hardware and software to receive a request for valuation of a coupon from a retailer, access market demand for the product, determine the market demand value, determine the coupon value, and provide the retailer with the determined coupon value.

In one embodiment, when a customer purchases a product from a retailer, the customer may present a discount coupon for redemption 2. The coupon may include a code 3 that is readable by the retailer's computer system 4. The retailer's computer system 4 may identify the code 3 as a coupon 2 with a resetable value. The retailer's computer 4 may then compile a request for valuation code. The retailer's computer may transmit the valuation code to the manufacturer's computer 8 through the Internet 5 or other data link such as a dedicated satellite link. Upon receiving the request, the valuation program 10 may use information in a product information database 6 and a product demand variable percentage database 7 to calculate the market demand value and the coupon value. The manufacturer 8 may then send this information back to the retailer 4. The retailer's computer 4 may receive the reply and apply the percentage of the discount specified by the manufacturer 8 to the customer's purchase. Those skilled in the art will recognize that the valuation program may be resident in any computer.

One embodiment of a computer program capable of resetting the value of a coupon based on market information is illustrated in FIG. 2 and designated in the aggregate as numeral 10. The program may receive a request for valuation of a coupon from a retailer 14, access market demand for the product 16, determine the market demand value 18, determine the coupon value 20, and provide the retailer with the determined coupon value 22.

The program may receive a request for valuation of a coupon 14 from a retailer. In one embodiment, the request for valuation may be a unique code readable by the computer program. The code may represent a request for valuation of a coupon. The code may contain coupon information including the face value, and the specific product to which the coupon pertains. The code may also contain information relating to the retailer's identity.

The program may access market demand information for the product 16. In one embodiment, the program may open a file containing product market information for the specified retailer. The file may contain a plurality of records. Each record may contain information of a specific product. Each record may contain a plurality of fields of information. One embodiment of the fields contained in a record is shown in FIG. 3. Field 1 named "Inventory at retailer" 26 may contain the quantity of the product presently at the retailer. Field 2 "Minimum inventory" 28 may contain the minimum quantity of product the retailer wishes to have available. Field 3 "Maximum inventory" 30 may contain the maximum quantity of product the retailer wishes to have available. Field 4 "Sales rate" 32 may contain the number of items sold in the previous eight business hours of the retailer. Field 5 "Average age of inventory" 34 may contain the average time the products at the retailer have been available to the retailer. Field 6 "Maximum age of inventory" 36 may contain the longest time a retailer wishes to have a particular product at the retailer. Field 7 "Competitor #1 pricing" 38 may contain the price of a comparable product offered by the closest competitor. Field 8 "Competitor #2 pricing" 40 may contain the price of a comparable product

offered by the second closest competitor. Field 9 "Competitor #1 inventory" 42 may contain the amount of comparable product from the closest competitor available to the retailer. Field 10 "Competitor #1 minimum inventory" 44 may contain the minimum amount of comparable product from the closest competitor the retailer wishes to have available. Field 11 "Competitor #1 maximum inventory" 46 may contain the maximum amount of comparable product from the closest competitor the retailer wishes to have available. Field 12 "Competitor #1 coupon value" 48 may contain the discount coupon value for the comparable product from the closest competitor. Field 13 "Competitor #2 inventory" 50 may contain the amount of comparable product from the second closest competitor available to the retailer. Field 14 "Competitor #2 minimum inventory" 52 may contain the minimum amount of comparable product from the second closest competitor the retailer wishes to have available. Field 15 "Competitor #2 maximum inventory" 54 may contain the maximum amount of comparable product from the second closest competitor the retailer wishes to have available. Field 16 "Competitor #2 coupon value" 56 may contain the discount coupon value for the comparable product from the second closest competitor. Field 17 "Last year's sales rate" 58 may contain the number of items sold during the eight business hours ending at the same time last year. Field 18 "Last year's plus 8 hours sales rate" 60 may contain the number of items sold during the eight business hours starting at the same time last year. Field 19 "Economic indicators" 62 may contain a ratio of the current Consumer Price Index and the Consumer Price Index a year ago. Field 20 "Maximum coupon value" 64 may contain the maximum value of the coupon. Field 21 "Minimum coupon value" 66 may contain the minimum value for the coupon. Field 22 "Minimum percent to be allocated to customer" 68 may contain a value representing a minimum percent of the coupon value to be credited to the customer. The information in the record fields may be updated by the manufacturer's production database, the retailer's inventory database, or by manual entry performed by either the retailer or

manufacturer. Those skilled in the art will recognize that the product record may also include geographical information, anticipated competitor pricing based on the number of ads placed, or any other factor associated with the sale of a product.

The program may determine the market demand value based on the market demand information 18. In one embodiment, the program may open a file containing market demand factor percentages. The file may contain a plurality of records. Each record may contain information of a specific product. Each record may contain a plurality of fields of information. One embodiment of the fields contained in a record is shown in FIG. 4. Field 1 named "Inventory factor percentage" 70 may contain the percentage that the market demand value will be based on the variable named "inventory factor". Field 2 "Inventory age factor percentage" 72 may contain the percentage that the market demand value will be based on the variable named "Inventory age factor". Field 3 "Competitor #1 price factor percentage" 74 may contain the percentage that the market demand value will be based on the variable named "Competitor #1 price factor". Field 4 "Competitor #1 inventory factor percentage" 76 may contain the percentage that the market demand value will be based on the variable named "Competitor #1 inventory factor". Field 5 "Competitor #1 coupon value factor percentage" 78 may contain the percentage that the market demand value will be based on the variable named "Competitor #1 coupon value factor". Field 6 "Competitor #2 price factor percentage" 80 may contain the percentage that the market demand value will be based on the variable named "Competitor #2 price factor". Field 7 "Competitor #2 inventory factor percentage" 82 may contain the percentage that the market demand value will be based on the variable named "Competitor #2 inventory factor". Field 8 "Competitor #2 coupon value factor percentage" 84 may contain the percentage that the market demand value will be based on the variable named "Competitor #2 coupon value factor". Field 9 "Cyclical buying factor percentage" 86 may contain the percentage that the market demand value



5 percentages in Fields 1 through 10 may total 100 percent. The percentages  
recorded in the record fields may be updated by the manufacturer. The program  
may use the information in the product market information database and the  
market demand factor percentages database to calculate the market demand  
value. In one embodiment, the market demand value may be calculated using  
10 the equation:

$$\begin{aligned} \text{Market demand value} = & (\text{Inventory factor percentage } 70 * \text{Inventory factor}) \\ & + (\text{Inventory age factor percentage } 72 * \text{Inventory age factor}) + (\text{Competitor \#1} \\ & \text{price factor percentage } 74 * \text{Competitor \#1 price factor}) + (\text{Competitor \#1} \\ & \text{inventory factor percentage } 76 * \text{Competitor \#1 inventory factor}) + (\text{Competitor \#1} \\ & \text{coupon value factor percentage } 78 * \text{Competitor \#1 coupon value factor}) + \\ & (\text{Competitor \#2 price factor percentage } 80 * \text{Competitor \#2 price factor}) + \\ & (\text{Competitor \#2 inventory factor percentage } 82 * \text{Competitor \#2 inventory factor}) + \\ & (\text{Competitor \#2 coupon value factor percentage } 84 * \text{Competitor \#2 coupon value} \\ & \text{factor}) + (\text{Cyclical buying factor percentage } 86 * \text{Cyclical buying factor}) + \\ & (\text{Economic factor percentage } 88 * \text{Economic factor}). \end{aligned}$$

Inventory factor = (Inventory at the retailer 26 - Minimum inventory 28) / (Maximum inventory 30 - Minimum inventory 28). If the result of Inventory factor is negative, a value of zero should be used.

Inventory age factor = Average age of inventory **34** / Maximum age of inventory **36**

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Competitor #1 price factor = Product price / Competitor #1 pricing **38**

Competitor #1 inventory factor = (Competitor #1 inventory **42** - Competitor  
#1 minimum inventory **44**) / (Competitor #1 maximum inventory  
**46** - Competitor #1 minimum inventory **44**). If the result of  
Competitor #1 inventory factor is negative, a value of zero  
should be used.

Competitor #1 coupon value factor = Competitor #1 coupon value **48**

Competitor #2 price factor = Product price / Competitor #2 pricing **40**

Competitor #2 inventory factor = (Competitor #2 inventory **50** - Competitor  
#2 minimum inventory **52**) / (Competitor #2 maximum inventory  
**54** - Competitor #2 minimum inventory **52**). If the result of  
Competitor #2 inventory factor is negative, a value of zero  
should be used.

Competitor #2 coupon value factor = Competitor #2 coupon value **56**

Cyclical buying factor = Last year's sales rate **58** / Last year's plus 8 hours  
sales rate **60**

Economic factor = Economic indicators **62**

Those skilled in the art will recognize that different equations may be used to  
calculate the market demand value.

The program may determine a coupon value based on the market demand value 20. In one embodiment, the coupon value may be calculated using the equation:

5        Coupon value = Minimum coupon value 66 + (Market demand value \*  
          ((Maximum coupon value 64 - Minimum coupon value 66) /100). If  
          the resulting coupon value is less than the Minimum coupon value  
          66, the Minimum coupon value 66 should be used. If the resulting  
          coupon value is greater than the Maximum coupon value 64, the  
10        Maximum coupon value 64 should be used.

The program may provide the coupon value to the retailer 22. In one embodiment, the reply to the request for valuation may be a unique code readable by the retailer's computer. The code may contain the reset coupon value and the Minimum percent to be allocated to customer 68.

15        In one embodiment, when a customer purchases a product from a retailer, the customer may present a discount coupon 2 for redemption. The coupon 2 may include a code 3 that is readable by the retailers computer system 4. The retailer's computer 4 system may identify the code 3 as a coupon 2 with a resetable value. The retailer's computer 4 may then compile a request for  
20        valuation code. The retailer's computer 4 may transmit the valuation code to the manufacturer's computer. The code may be transmitted to the manufacturer 8 using the Internet 5.

Referring to FIG. 5, the valuation program may scan the manufacturer's computer inputs 90 for a request for valuation code. If data is received that is not  
25        a request for valuation, the valuation program ignores the data and continues to scan the input device for a valuation code 92. Upon receiving the request code, the valuation program may analysis the code to determine the retailer requesting valuation, product to which the discount is to apply, and the product 94.

Referring to FIG. 6, the valuation program may search a collection of files containing product market information for a file containing information about the retailer that submitted the request for valuation. Having located the file 96, the program may open the file 98 and search the records contained therein for the record associated with the specific product 100. Having found the record associated with the product, the valuation program may read the data contained in the record fields 102 and store them for later processing.

Referring to FIG. 7, the valuation program may search a second collection of files containing product demand variable percentages for a file containing information about the retailer submitting the request for valuation. Having located the file 104, the program may open the file 106 and search the records contained therein for the record associated with the specific product. Having found the record 108 associated with the product, the valuation program may read the data contained in the record fields 110 and store them for later processing. The valuation program may apply the variables found in the records to an equation to determine the market demand value 112 for the coupon. The valuation program may then calculate the coupon value (FIG. 8) 114 using the market demand value.

Referring to FIG. 9, the valuation program may compile a response to send to the retailer 116. The response may include the reset value of the coupon and the minimum percent of the coupon value that is to be given to the coupon. The valuation program may access the output device 118 of the manufacturer's computer and send the reply code to the output device 120. The output device may transmit the reply code to the retailer using the same method as the retailer used to transmit the request. The retailer's computer may receive the reply and apply the percentage of the discount specified by the manufacturer to the customer's purchase. Those skilled in the art will recognize that the valuation program may be resident in any computer.

While the embodiments of the invention disclosed herein are presently considered to be preferred, various changes and modifications can be made without departing from the spirit and scope of the invention. The scope of the invention is indicated in the appended claims, and all changes that come within the meaning and range of equivalents are intended to be embraced therein.

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